

DETAILED ACTION

Examiner's Note

The examiner acknowledges the addition of new claim 12 in the amendments filed 3/25/2010.

Response to Amendment

1. Applicant's arguments, see pages 7-8, filed 3/25/2010, with respect to the rejection of claims 1-5 and 7-10 under 35 U.S.C. 112, 1st paragraph have been fully considered and are persuasive. The rejection of claims 1-5 and 7-10 has been withdrawn.

Election/Restrictions

Newly submitted claim 12 directed to an invention that lacks unity with the invention originally claimed for the following reasons: Current claim 12 requires the following limitations, which are not required by current claim 1: a geometrically deformed metallic foil; any synthetic material to be formed; mechanically coupling a metal foil to any synthetic material, which is broader than mechanically anchoring. Claim 1 requires a carrier layer of a thermoplastic synthetic, which is not required by claim 12. Therefore since the limitations of the claims fail to share a special technical feature, there is a lack of unity of invention between the claims.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claim 12 is withdrawn from consideration as being directed to a nonelected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Specification

2. The amendment filed 3/25/2010 is objected to under 35 U.S.C. 132(a) because it introduces new matter into the disclosure. 35 U.S.C. 132(a) states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: The amendments to the specification set forth in page 2 of the current amendments, with respect to the inclusion of “inlaid” constitutes new matter as the applicants have not provided a certified translation of the relevant text from the foreign priority document. The examiner notes that the “GMT” and “at least one to five” amendments have support in page 3, line 32 and page 4, lines 16-17, respectively, of the specification as originally filed.

Applicant is required to cancel the new matter in the reply to this Office Action.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. **Claims 1-5 and 7-10** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 1, the recitation of "partially compressed" is indefinite as it is unclear from the limitations to what extent the folding pockets must be compressed in order to qualify as being partially compressed.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. **Claims 1-5 and 8-10** are rejected under 35 U.S.C. 103(a) as being unpatentable over Ragland et al. (US 2001/0010865 A1) in view of Butler (US 5656353) as evidenced in [AZDEL, Inc.] of AZMET product descriptions.

Regarding claims 1-5 and 10, Ragland teaches multilayer metal foil structures which have utility as heat shields (para 0001), useful as a shield to the underbody of a vehicle (para 0029, lines 9-10), comprising at least three corrugated (plurality of folding pockets, unperforated) metal layers which are metal foil layers having a thickness of 0.15 mm or less such as 0.05 mm (para 0007, lines 1-9), said metal foil being aluminum (para 0031, lines 1-3) and said corrugations having a nonuniform and irregular shape (random, compared to other folding pockets) that are compressed (deformation) to fold and interlock (mechanical anchoring) (para 012, lines 5-9). Ragland also teaches alternate material layers in between (embedded) the corrugated metal layers such as plastic films (carrier layer), adhesives and fibers to enhance acoustic damping properties (para 0013, lines 36-38 and para 0031, lines 7-13).

Ragland is silent to a carrier layer made of a thermoplastic synthetic (claim 1), said thermoplastic synthetic is an endless fiber reinforced thermoplast (claim 2) or a glass fiber reinforced synthetic (claim 3).

However, Butler teaches an automotive vehicle heat shield (abstract) made of a laminated sheet material of a metallic reflective layer attached to an insulating layer (column 1, lines 47-49), with one layer made of a thermoplastic material and the other layer comprising a reflective metallic

layer and that the thermoplastic material (synthetic) is made of AZMET polyester resin (sold by [AZDEL, Inc], containing polybutylene terephthalate containing 35% long glass fiber or polyethylene terephthalate containing 35% long glass fiber as evidenced in AZMET production description included with the previous action) (column 2, lines 27-32). Butler also teaches that the structural plastic layer provides the necessary structure to the heat shield (column 1, lines 65-66). It is noted that the combination of the Ragland and Butler reference provides a heat-protected thermoplastic component.

The examiner notes, that while Butler does not disclose all the features of the presently claimed invention, Butler is used as teaching reference, and therefore, it is not necessary for this secondary reference to contain all the features of the presently claimed invention, *In re Nievelt*, 482 F.2d 965, 179 USPQ 224, 226 (CCPA 1973), *In re Keller* 624 F.2d 413, 208 USPQ 871, 881 (CCPA 1981). Rather this reference teaches a certain concept, namely fiber-reinforced thermoplastics used as a structural component layer in a heat-shield, and in combination with the primary reference, discloses the presently claimed invention.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the disclosed inventions of Ragland and Butler towards a heat shielding laminate wherein said heat shield comprises a fiber reinforced thermoplastic layer for providing structural support to the heat shield and insulation to portions of a vehicle requiring thermal insulation from heated portions of the vehicle as in the present invention.

Regarding claims 8-9, given that the combination of Ragland and Butler disclose components identical to that as claimed by applicant(s) - including metallic layer and fiber reinforced thermoplastic - it is clear that the heat shield as taught by the combined references of Ragland and Butler would intrinsically possess a peeling strength as presently claimed.

8. **Claim 7** is rejected under 35 U.S.C. 103(a) as being unpatentable over Ragland et al. (US 2001/0010865 A1) in view of Butler (US 5656353) as evidenced in [AZDEL, Inc.] of AZMET product descriptions and in further view Heucher et al (US 5883172).

Regarding claim 7, Ragland and Butler teach a heat-shield as in the rejection of claim 1 above. Ragland and Butler are silent to a hotmelt adhesive provided between a foil and a carrier layer.

However, Heucher teaches a polyamide hotmelt adhesive (title), usable in the automotive industry (column 1, line 61), said hotmelts used to bond non-pretreated metals, e.g. aluminum, to plastics, e.g. polyethylene (abstract and column 2, lines 2-5). Heucher continues to teach hotmelts with high peel strengths on metals and lower permeability to water vapor (column 5, lines 8-12).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide a hotmelt adhesive as taught by Heucher between a metal foil and fiber reinforced thermoplastic layer taught by Ragland and Butler towards a heat shield with increased

bonding between the two layers and water impermeability, thereby improving the durability of the heat shield's structure as in the present invention.

Response to Arguments

9. Applicant's arguments, see pages 11-17, filed 3/25/2010 with respect to the rejection of claims 1-5 and 8-10 (and claim 7) over Ragland et al. (US 2001/0010865 A1) in view of Butler (US 5656353) as evidenced in [AZDEL, Inc.] of AZMET product descriptions (and in further View of Heucher) under 35 U.S.C. 103(a) have been fully considered but they are not persuasive.

The applicants submit that the examiner has employed improper hindsight in the use of the Ragland reference given that the examiner has used the three corrugated perforated metal layers as taught by the reference to teach the claimed plurality of folding pockets in a single foil layer, with said corrugations having a uniform and irregular shape and having a random deformation. The applicants note that the nonmetal layers in between Ragland's multilayer product are just additional layers and do not change the basic principle of the reference's invention and thus, the examiner's implied statement that the use of a thermosplastic synthetic material in a one step process is disclosed because Ragland discloses a film material ignores that the claimed compression molding technology applied to Ragland would ruin the desired air gaps

and impermissibly alter the basic principle of Ragland. The applicants also provide a definition of a laminate, apparently obtained from a Webster's Dictionary.

The examiner respectfully disagrees with the applicants' assertion that improper hindsight was employed in combining the Ragland and Butler references. In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971). As set forth in the prior art rejections of the previous action, and maintained above, Ragland clearly teaches the limitations of independent claim 1 to include an unperforated metal foil. It is noted that Ragland teaches perforations (see the last few lines of paragraph 0034) in one or more layers as an option and thus, one of ordinary skill in the art would be apprised that Ragland intended for embodiments absent of perforations. It also noted that the current invention optionally discloses perforations for an identical reason (see page, lines 22-24).

In regards to the "additional layers," it is noted that Ragland specifically recites that the alternate material layers such as plastic films are provided towards enhancing the acoustical damping properties, which clearly explices a change in a basic principle depending on what the applicants interpret as a basic principle. In regards to the "ruined air gaps" (and the "additional layers"), it is noted that "the arguments of counsel cannot take the place of evidence in the

record”, *In re Schulze*, 346 F.2d 600, 602, 145 USPQ 716, 718 (CCPA 1965). It is the examiner’s position that the arguments provided by the applicant regarding the additional layers and the air gaps of Ragland ruined by compression molding must be supported by a declaration or affidavit. As set forth in MPEP 716.02(g), “the reason for requiring evidence in a declaration or affidavit form is to obtain the assurances that any statements or representations made are correct, as provided by 35 U.S.C. 24 and 18 U.S.C. 1001.”

The applicants continue to argue that the multilayer foil shield of Ragland used as a heat shield in cars differs from that presently claimed or that disclosed in the Butler reference, both of which are rigid structures and are used in areas requiring a light product that radiates heat while being simultaneously self-supporting, and which contrast the foil insulators of Ragland used when a heat shield is required to be flexible in order to form around curved areas, i.e. an exhaust line, along a power train. The applicants also assert that problems concerning one of ordinary skill in the art of the Ragland reference is different from those of the instant invention; specifically, Ragland addresses the maintenance of air in between layers towards optimizing a heat shielding effect while the current invention is directed to obtaining and maintaining a proper laminate. In addition, the applicants state that the current invention does not contain, nor depend on, air layers, and that the multilayer metal foil shields are not considered laminates by those of ordinary skill in the art. Therefore, the applicants contend, one of ordinary skill in the art would not be motivated to combine the Ragland and Butler references to arrive at the claimed invention as the references are directed to completely different fields of competence.

In response to applicant's argument that there is no teaching, suggestion, or motivation to combine the references, the examiner recognizes that obviousness may be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988), *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992), and *KSR International Co. v. Teleflex, Inc.*, 550 U.S. 398, 82 USPQ2d 1385 (2007). In this case, as recognized by the applicants, both of the prior art references are directed towards heat shields for use in automobiles, which clearly provides a significant overlap between the technologies represented and disclosed by the Ragland and Butler references and, contrary to the applicants' contention, do not represent competences in fields outside of one another.

It is also noted that the "test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference... Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art", *In re Keller*, 642 F.2d 413,208 USPQ 871,881 (CCPA 1981) and that "combining the teachings of references does not involve an ability to combine their specific structures", *In re Nievelt*, 482 F.2d 965, 179 USP 224, 226 (CCPA). In addition, "obviousness under 103 is not negated because the motivation to arrive at the claimed invention as disclosed by the prior art does not agree with appellant's motivation", *In re Dillon*, 16 USPQ2d 1897 (Fed. Cir. 1990), *In re Tomlinson*, 150 USPQ 623 (CCPA 1966).

Further, applicants' are reminded that according to MPEP 2141.01 (a), a reference may be relied on as a basis for rejection of an applicants' invention if it is "reasonably pertinent to the particular problem with which the inventor is concerned." A reasonably pertinent reference is further described as one which "even though it maybe in a different field of endeavor, it is one which, because of the matter with which it deals, logically would have commended itself to an inventor's attention in considering his problem." Butler is, therefore, a reasonably pertinent reference, because it teaches heat shielding structures for use in the automotive industry, which is a function especially pertinent to the invention at hand as presently disclosed.

Finally, the applicants' attention is directed to paragraph 0031 of the Ragland reference wherein it is conspicuously disclosed that materials useful in the corrugated stacks are apparent to one of ordinary skill in the art and include "laminates of metal." The examiner notes that the currently claimed subject matter is silent to the positive exclusion of air layers and the dependence on air for performance.

The applicants further argue (see pages 13-15) that the "pronged" invention of the Butler reference (and WO 99/44851), unlike the instant invention, exposes material beneath the perforated foils that are not covered by the foil thereby increasing the overall aging of the part while use of an unperforated foil would eliminate weak spots thereby increasing the life span of the part. Also, the two references do not teach how to combine a metal foil and a thermoplastic in a one step process to combine preformed thermoplastic and metal as described in the present application, and indeed, the two references teach mandatory perforation of the metallic foil to obtain anchoring points between a foil and synthetic material, which does not teach the

unperforated metal foil presently claimed. The applicants mention that the [AZDEL] citation is incapable of curing the deficiencies of Raglan and Butler.

In response, the examiner notes that while Butler does not disclose all the features of the present claimed invention, Butler is used as teaching reference, and therefore, it is not necessary for this secondary reference to contain all the features of the presently claimed invention, *In re Nievelt*, 482 F.2d 965, 179 USPQ 224, 226 (CCPA 1973), *In re Keller* 624 F.2d 413, 208 USPQ 871, 881 (CCPA 1981). Rather this reference teaches a certain concept, namely fiber-reinforced thermoplastics used as a structural component layer in a heat-shield, and in combination with the primary reference, discloses the presently claimed invention. Also, as acknowledged by the applicants, the [AZDEL] reference was employed as an evidential reference to further provide the specific compositional make up of the thermoplastic synthetic, which was employed in the Butler reference. In addition, while Butler does disclose a perforated metallic foil, it is significant to note that Ragland teaches both perforated and unperforated foil; therefore, it would have been obvious to use the fiber-reinforced thermoplastic of Butler in Ragland.

The applicants finally argue (see pages 15-16) that the primary Ragland reference, the Butler secondary reference and the [AZDEL] evidential reference, said references taken either alone or in combination with the other each, fail to teach all of the limitations recited in independent claim 1 of the current invention, and that the prior art of record and the rejections under 35 U.S.C. 103(a) have not described or taught the applicants' structure nor the basics or key aspects of the applicants' invention.

The applicants' attention is directed to the prior art rejections set forth above in the current action, which clearly explicates how the combined references teach all the limitations of the currently claimed invention, and to the examiner's previous responses to the applicants' arguments set forth above in the current action. It is the examiner's interpretation that the limitations of the current invention are synonymous with the basic and key aspects of the current invention and therefore, the examiner has responded sufficiently to the applicants' current remarks. It is noted, however, that Ragland teaches corrugated metal foil layers, with said corrugations having a nonuniform and irregular shape that are compressed to fold and interlock, which clearly teaches pockets that are folded as presently claimed in currently claim 1 and contrary to the applicants assertions that Ragland fails to teach "a plurality of folding pockets, which are ...folded and therefore form unperforated folding pockets."

The applicants contend that claim 7 is allowable for at least the reasons that the applicants argue that claim is allowable. The applicants' attention is directed to the prior art rejection of claims 1 and 7 set forth above and to the examiner's responses to the applicants' argument set forth above.

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to FRANK D. DUCHENEAUX whose telephone number is (571)270-7053. The examiner can normally be reached on M-Th, 7:30 A.M. - 5:00 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Callie E. Shosho can be reached on (571)272-1123. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/FRANK D DUCHENEAUX/
Examiner, Art Unit 1787

/Callie E. Shosho/
Supervisory Patent Examiner, Art Unit 1787